THE INTERNATIONAL SECTOR

In the absence of trade a country is constrained in consumption by what it produces. In this case, the production possibilities curve becomes the consumption possibilities curve. An economy that is self-sufficient in that it does not need to trade is said to be in autarky. In the presence of trade the consummption possibilities curve expands. Consumers usually have a wider variety of products to select from as well as a greater quantity to consume. Trade is two ways: Sales to foreigners are exports; Purchases from foreigners are imports.

Exports have the economic effect of increasing aggregate demand while imports decrease aggregate demand. Exports increase domestic employment, imports decrease domestic employment.

There is a circular flow of funds in the international sector. As Americans buy Mexican goods, Mexicans acquire American dollars. Eventually Mexicans must use those dollars to buy either American goods or assets. Put another way, as we import more Mexican goods, Mexicans have the cash to buy more American goods. It is this complex interaction that makes economic analysis of international transactions interesting.

The International Sector has been one of the fastest growing areas of the American economy. Employment growth in international business has been particularly strong . Multinational firms are dominant players in many sectors of the economy. Even midsize firms typically sell overseas and compete against imports here in the US. For the consumer this has meant good news, a broader product selection at a lower price. Competition has not only forced companies to be more efficient in their operations but also offer higher quality merchandise. Companies facing import competition or engaging in exporting have had to keep labor costs under control, or risk going out of business. The work force has had to learn how to be more productive while producing a higher quality product. Workers are learning that higher productivity is the key to better wages. Acquiring and maintaining skills is becoming important in this environment. Skills necessary for these jobs require knowledge of foreign business practices and languages, something beyond como esta!

Fundamental Theory of Trade

The first principle of trade, called the fundamental theory of trade, is that voluntary trade is mutually beneficial. Proving it is quite simple. Let's say that you desire some fine Honduran coffee. You are willing to pay $10 for one kilogram. No one is forcing you to buy it but you know how good it is (and I can testify that it is good). On the other side in San Pedro Sula, Honduras, is a supplier who believes that selling a kilogram of coffee to a gringo for $10 is a really good deal. She can use the $10 more than that extra kilo of coffee. Both sides derive benefit (ie. Utility) in the transaction and would not engage in the deal unless they each benefited. Consequently voluntary trade is mutually beneficial. Economists generally support the concept of free trade.

Analyzing trade will not be quite this easy, but it points out that restricting trade has a cost of reducing utility. To start our analysis of the international sector let's begin with a discussion of a trade flow measure called the balance of payments.

Balance of Payments

Balance of payments is an accounting of the economic transactions between the home country and the rest of the world over the period of one year. Although the word balance is in the title, it is not like a traditional Balance Sheet but more like a Cash Flow Statement. Like traditional financial accounting there are debits and credits. Every transaction must have a debit and a credit, and they must always equal one another. The total of the debits and the credits must always equal.

To make matters complicated, economists classify a credit transaction (even though it has a debit) as

one that results in a receipt from a foreigner such as exporting our goods. Conversely, a debit transaction (again, there is an associated credit) is one that results in a payment to a foreigner such as importing their goods. This classification scheme is useful in predicting pressures on exchange rates. In the table below, exports are credits and imports are debits. Foreigners pay for exports, we pay for imports.

International Transactions, 1998
$ Billions

Exports	1,174
Merchandise goods	671
Services	260
Income receipts on US assets abroad	243
Imports	1,366
Merchandise goods	919
Services	182
Income payments on foreign assets in the US	265
Unlateral transfers	42
US assets abroad,net (increase/capital outflow (-))	306
Official	7
Private	299
Foreign asset in the US, net	542
Official	-22
Private	564
Memorandum Items	
Balance of Current Account	NA
Balance of Capital Account	863
Balance of Official Account	-15

Source: Table 1 - International Transactions, Survey of Current Business, June 99
Economists frequently rearrange these accounts into three groups, using the following accounting identity: Current Account = Capital Account + Official Reserves Account. Technically, this equation always balances. The current account encompasses exports, imports and unilateral transfers. The capital account tracks foreign assets in the US and US assets invested abroad. Some economists differentiate between official assets (owned by governments) and private assets. If there is a "deficit" in the current account then there is a "surplus" in the capital account. A foreign trade deficit is caused when imports exceed exports. In one interpretation of this deficit, the inflows of the capital account finance the acquisition of goods and services in the current account. But large capital inflows could be caused by a favorable investment climate in the United States relative to other countries and not be related to trade flows. Large purchases of imports may simply reflect the prosperity of the United States relative to other countries. The point here is that foreign trade deficits must be interpreted within the context of global economic conditions.

Terms of Trade

The ratio of export prices to import prices, called the terms of trade, impacts the balance of payments. If exports command high prices relative to imports then a favorable balance could result as it takes little export to pay for imports leaving a surplus balance. If one IBM computer can buy 100 bottles of French wine, that would probably generate more export earnings than if it took one computer to buy one bottle

of French wine.

Financing Trade

If prices rise on imported goods, a couple of important effects occur. One, unless the quantity bought drops by a larger percentage than the percentage increase in prices, then the total amount spent on imports will rise.

In example (a) import demand appears to be slightly inelastic. Customers are not as sensitive to price changes. Consequently, they continue buying those goods. In contrast, in (b) customers apparently have alternatives and therefore, are not as willing to continue purchasing expensive imported goods.

Two, because of increased spedning on imported goods (due to the price increase), the trade deficit increases. This increases the outward flow of dollars.

As foreigners acquire dollars, they may buy either American goods or assets.

As we will discuss under exchange rates, when there is a large outflow of American dollars, the value of the American dollar compared to the foreign currency will drop.

This discussion has a strong application to America's huge thirst for imported oil. Because demand for oil is inelastic (price insensitive), any increase in oil prices sends large amounts of dollars to oil exporting countries. Oil prices increases cause many other domestic prices to increase as oil is either a raw material or an energy source in the production of goods or services.

Three, as consumers spend more money on imported goods, let's say gasoline, they must spend less on other goods. Unless export demand increases, this can have a negative effect on economic growth.

Traditional economic analyses of the current emphasize that the capital account finances current account expenditures. That was primarily true until the late 80's, but not now because of the free flow of international capital, changes in ownership and level of assets reflect the relative attractiveness of investment opportunities, not changes in trade flows in the current account.

This new ball game has new rules, many countries must cater to international capital to finance the investment necessary for economic growth. Failure to provide a favorable environment for capital will lead to an outflow of capital from your country possibly triggering an economic crisis.

International Trade

Exports and Imports

On a more mundane level, exporters want to know what affects their level of sales. There are two basic factors, income and price. Income of the foreign country gives them the ability to buy your exports. Price gives them the desire to buy your goods as opposed to domestically produced items. This price is in the foreign currency, which means foreign currency must be exchanged for domestic currency in the foreign exchange market. Therefore, the exchange rate has an effect on the price exporters charge in the foreign country.

As foreign incomes rise, export demand increases and the converse is true. Canada and Mexico are the top customers for American products. If the Mexicans are having a bad day, then the Americans sell less and will also have a bad day. Put another way, if Mexico goes into a recession, through the trade linkage, there will be recessionary impacts on the United States. In effect, the business of Mexico is our business and vice versa. This can make for some interesting politics.

Imports are also a function of income and prices. As American income rises, Americans buy more foreign products. If America goes into a recession and buys less foreign products, then all of our trade partners will suffer hardship. Prices of imported products must be competitive with domestically

produced products. Again, there is a currency exchange that must take place.

Both export and import prices reflect additional costs not incurred by domestic producers. Costs of transportation, currency exchange fees and risk must be covered. If it costs $600 per car to ship and sell it in America, then the cost of production in Japan will need to be that much lower than the cost of production in America to justify exporting it.

Why does the United States both export and import cars? Why does the U.S. tend to export more capital goods and import consumer goods?

Components of the International Sector, 1997
$ Billions

Exports	**965.4**
Goods	688.3
Foods, feeds, and beverages	46.1
Industrial supplies and materials	142.5
Capital goods, except automotive	301.2
Automotive vehicles, engines, and parts	72.3
Consumer goods, except automotive	79.6
Other	39.1
Services	277.1
Imports	**1,058.8**
Goods	888.3
Foods, feeds, and beverages	41.3
Industrial supplies and materials, except petroleum and products	142.7
Petroleum and products	51.2
Capital goods, except automotive	270.4
Automotive vehicles, engines, and parts	150.3
Consumer goods, except automotive	215.6
Other	61.0
Services	170.4
Net exports (imports) of goods and services	**(93.4)**

Source: Table 1 - International Transactions, Survey of Current Business, June 99

Comparative Advantage

There are several explanations of trade. First, let us consider the principle of comparative advantage. It assumes that production costs vary among countries. Suppose we have two countries, Tampa and Miami, and two products oranges and grouper. Let's further assume that only labor is needed to harvest these products, due to nature's infinite bounty. Data is given as follows:

Ouput Table	Miami	Tampa
Oranges	10	50
Grouper	200	500
Labor Force	100	20

The theory of comparative advantage predicts that each country will produce and export the good in which it enjoys the comparative advantage.

To see this we need to compute the opportunity cost of production.

	Miami	Tampa
Oranges	20	10
Grouper	.05	.10

For each ton of oranges, Miami gives up 20 tons of grouper (200/10) and Tampa 10 tons (500/50). Miami has a higher opportunity cost for oranges because it is easier for Miami to fish for grouper than to grow oranges.

For each ton of grouper caught, Miami sacrifices .05 tons of oranges (10/200), and Tampa gives up .10 tons (50/500) of oranges. It is, compared to Miami, more expensive for Tampa to catch grouper than grow oranges since it gives up more oranges per ton of grouper.

This forms the basis for trade. Miami will trade grouper for oranges from Tampa. The terms of trade (the ratio of export prices to import prices) will lie between .05 and .10 tons of oranges for each ton of grouper. Not an exact price, but further refinement would have to take into account the relative tastes of preferences of the two communities.

Notice that this trade takes place even though Tampa is a more efficient producer of both oranges and grouper. To see this, compute the output per worker for each product and country.

	Miami	Tampa
Oranges	.1	2.5
Grouper	2	25

Miami may enjoy a comparative advantage in harvesting grouper because it has access to Atlantic grouper that are more numerous than the Gulf grouper near Tampa (but Gulf grouper are tastier). This means that Miami has a greater resource endowment of fish.

Both countries produce and export those goods and services for which they have the lowest opportunity cost and import goods and services for which they incur a high opportunity cost.

Comparative advantage predicts that countries will trade different goods. In real life, a majority of the trade may be intraindustry trade as in cars for the United States. Before we discuss the reasons why this is so, we need to finish our discussion by looking at the principle of absolute advantage.

Absolute Advantage

Again, refer to our Miami and Tampa example. The principle of absolute advantage would argue that no trade could take place because Tampa is more efficient (enjoys an absolute advantage) in both oranges and grouper production than Miami. If Miami were more efficient in harvesting grouper than Tampa, then Miami would trade grouper for oranges. But trade does occur and citizens of both countries benefit from it.

Let's work a simple example where absolute advantage would apply. One hour of labor produces the amount in kilograms of grain as shown in the table below.

	Corn	Wheat
USA	3	2
Canada	2	3

In this case, it is easy to see that Canada enjoys an absolute advantage in wheat and that USA enjoys an absolute advantage in the production of corn.

Economies of Scale and Product Differentiation

Returning to our discussion of intraindustry trade, there are two rationale for countries to trade similar products

Factors other than labor cost are important in plant location decisions. Very often when a company enters a new market (a different country), it services that market by exporting from factories it owns in another country. If market penetration is successful, the firm will build a new factory in the new market. Any spare capacity is exported back to the mother country until domestic demand rises.

I want to engage in a sidebar discussion about the contentious issue of exporting jobs to countries with cheap labor. America has always competed with countries that have cheaper labor. The American economy is considered to be one of the most competitive in the world . When those countries attract manufacturing facilities, a dynamic economic process is created. One, as workers now earn higher factory wages (necessary to attract labor from farming), that new income is spent on purchasing goods and services. Domestic demand increases to eventually buy nearly all, if not all, of the output of those factories that was originally exported. Secondly, industrializing countries experience rising wage levels eventually removing much of the initial cost advantage. Japanese wages are above those found in the United States. Until the current Asian crisis, several countries had wage levels that were fast approaching those of the United States. As income in developing countries increase, they buy more American goods and services which creates more jobs. Admittedly, this process is not instantaneous.

There is yet another perspective on this issue, manufacturing labor costs can average around 10% of the product's price. Given that closing down a factory and building a new factory in another country entails quite a large cost, it is doubtful, despite management claims, that lower labor costs boost profitability very much. It has been my experience that creative accounting plays more of role in justifying these moves than actual labor savings. Building a new plant with advanced technology is probably a better rationalization than labor savings due to high wage rates.

Another interesting series of questions revolve around production and supply. Production technologies and capital tend to move around the world. Consequently advantages in technology and productivity tend to be temporary. It can be expected the over time that production costs tend to converge. This rate of convergence may be quite slow at 1% per year. This is a controversial area with much empirical work remaining to be done.

Trade Barriers

Not surprisingly, there are countries that put up trade barriers to foreign products to protect their own industries. Industries protected by trade barriers tend to be and remain inefficient. Domestic industry associations have much more political clout to influence legislation to the determinant of foreign firms and domestic consumers. When trade barriers are lowered these firms lose market share and go out of business or are bought by a foreign firm. There are many ways to erect trade barriers such as tariffs, import quotas, domestic content rules, subsidies, and anti-dumping duties.

Tariffs

So how do countries restrict trade? The most powerful weapon is the tariff. A tariff is, simply, a tax. Ranging from 3 percent to 300, it can collect sizable revenue for the government. In fact, until WWI and the great American income tax, tariffs were the chief revenue support of the American government. In many countries around the world today, tariffs are an important source of revenue.

Tariffs can be used to protect a domestic industry and preserve domestic employment. Let's say that textile manufacturers complain to Congress. Congress slaps a 150 percent tariff on imported clothing and textiles. This gives domestic manufacturers a strong price advantage allowing them to maintain market share.

If the industry manufactures key defense materials, then Congress may impose a tariff to insure that there is a domestic source in case of war. Germany and Japan faced starvation during war. Consequently, they have attempted to encourage local agriculture and discourage reliance on foreign

food sources. Japan has been particularly aggressive in this area.

One other use of the tariff is as a tool of retaliation. When French authorities limited North American wheat into France, Clinton imposed a rather stiff tariff on French wine. French wine growers stormed French government offices. The situation was resolved to the satisfaction of the North Americans within 24 hours.

Tariffs can trigger trade war. France was experiencing a depression in the 1920's. A group of Republicans in Congress, fearing it would spread to the U.S., pushed the Taft-Hartley Tariff Act. This caused retaliation by both the French and British. By the time the trade war reached its peak, unemployment in all three countries reached historical highs. In Germany, these policies provided the conditions for Hitler's ascendancy. Fifty-five million people died in WWII. This was a very expensive economics lesson.

Quotas

Tariffs are not the only way to restrict trade, import quotas can be just as effective. Import quotas quantitatively restrict the amount of imports allowed into the country. These are also known as voluntary export restraints. A recent example was the "voluntary" import quotas of Japanese cars. It had the effect of reducing supply, drives prices up. Japanese carmakers were laughing all the way to the bank. Domestic producers raised prices to the dismay of consumers.

Standards

Trade can be restricted by imposing health or quality standards or to impose processing delays by limiting facilities available to inspect goods. For example, in the wine wars between France and Italy, French customs' inspectors would not allow Italian wine unless it was corked in a green bottle to meet "the high standards that French consumers have come to expect." I suspect the clear bottles with plastic screw-on caps would have been just fine for French consumers.

Domestic Content Rules

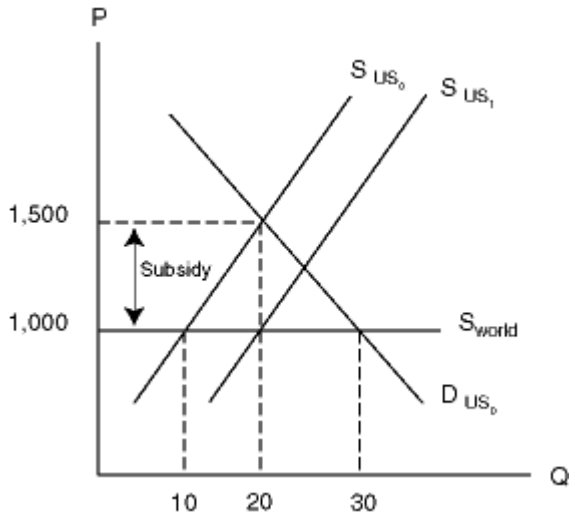
Many manufacturers purchase foreign components used in the assembly of their products. To limit competition from foreign suppliers, local content requirements are imposed. For example, domestic content regulation may require the 70% of the product be made in the USA or Canada. Many countries have domestic content regulations.

Subsidies

Many governments may give domestic producers subsidies. Subsidies to firms that compete against imports are called domestic subsidies, those given to exporters are called export subsidies. Government may issue a direct subsidy in the form of a cash payment to the exporter. This can be on the difference between the price and actual cost of production or on a set per unit reimbursement. Such subsidies are no longer allowed under GATT (General Agreement on Tariffs and Trade). Consequently many countries provide indirect subsidies. These can take the form of tax breaks, favorable government purchase breaks, or loans below market interest rates. As an example of the latter, the Export-Import Bank of the United States provides foreign purchasers credit to buy US products.

Domestic Subsidy

Figure 7.0



As a result of a subsidy at $400 per metric ton of flour domestic producers increase their output from 10 tons to 20 tons. Imports fall from 20 tons to 10 tons. The cost of the subsidy is $400 times the domestic output of 20 tons to equal $8,000. taxpayers will have to finance this subsidy. Consequently, consumption falls by this amount. Subsidies can lower the welfare of a nation by encouraging inefficient production and less than maximum utility caused by constrained consumption.

Dumping

The last issue is the practice of dumping. There are different definitions of dumping. From an economist's view it occurs when foreign buyers are charged a lower price than domestic buyers after allowing for transportation and transactions costs. The Trade Act of 1974 adds a second definition: selling below cost. In the United States, domestic producers file a petition alledging dumping with the Department of Commerce. If there is a finding of dumping after an investigation then there is imposed an antidumping duty.

2.5.4 Exchange Rates

Exchange rates are an important set of prices for a market economy. They both reflect and affect market conditions. Analyzing exchange rates requires an understanding of what affects trade flows and capital flows. Let's examine supply and demand for a currency using trade as an example.

Let's consider a simple example to illustrate the effect of exchange rates on trade flows. Let's say IBM can manufacture a computer for $1,000 in North Carolina. IBM exports this computer to France where the average price of a computer in euros equals 1,200. With an exchange rate of 1 €/$, IBM charges €1,000 consequently selling many computers. Due to a sudden shock in the foreign exchange now the rate is €1.4/$. Now the IBM computer costs €1,4000 which is far above French brands at €1,200. Sales of IBMs will plummet.

French goods face an opposite effect. Originally at €1/$1 America may have had a trade surplus with France but with a new rate at €1.4/$1, now it turns into a trade deficit.

Let's make the next example more interesting by stating the prices of similar items in terms of the domestic currency.

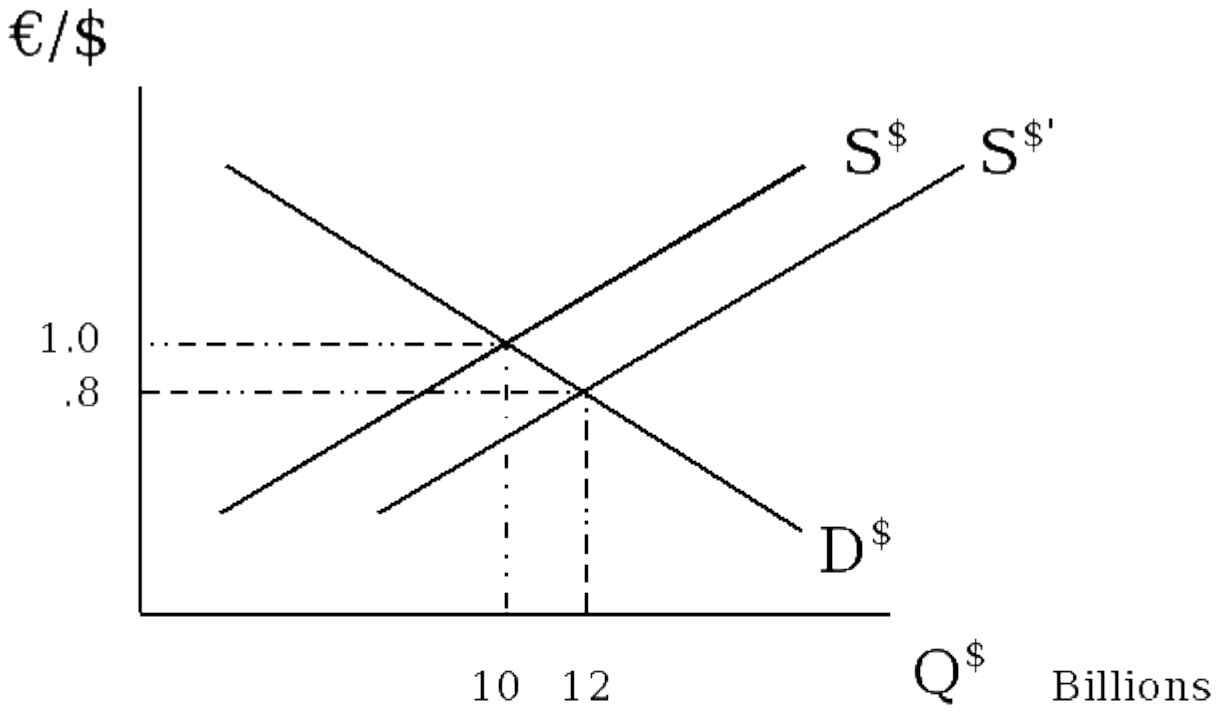
	British	French
Shirts	15	80
Slacks	10	20
Shoes	25	120

The exchange rate is £1:€4. There are no other transaction nor transportation costs. Which country will import which items? Key to solving this is to restate all items in terms of one currency. Restating French items in pounds, French shoes are £30, slacks are £5, and shirts are £20. It is cheaper for the French consumer to buy shoes and shirts from Great Britain. British consumers will buy French slacks. Note that if the exchange rate were to change to £1:€5 then French shoes would be cheaper. Changes in the exchange rate can and do affect trade flows.

Considering how strong these effects can be, is it surprising that the top eight trading countries meet often to discuss trade, currency, and economic issues? Naturally, the question arises as to what exactly effects exchange rates and how.

Trade implies importing and exporting goods and services. Imports must be paid for in the applicable foreign currency, ie. Mexico - pesos, Japan - yen, etc. Dollars must be sold in the foreign currency market to acquire, let's say, yen, ¥. As in any market there is a demand and supply component to establish a price, which in this case is the foreign currency exchange rate. Expressing the exchange rate as units of foreign currency per domestic currency, ¥/$ we can construct the supply and demand curves for dollars. This graph could have been constructed in terms of dollars per yen to render supply and demand in terms of yen. What is important to understand in the foreign exchange market is that the supply of dollars is equivalent to a demand for yen and vice versa.

Figure 8.0


€/$
S$
S$'
1.0
.8
D$
10
12
Q$
Billions

- Demand for Dollars
    - Exports

      Increases as a foreign economy grows
    - Foreigners buying domestic assets

      Increases as domestic assets yield higher returns than foreign assets, generally speaking when domestic interest rates are higher than foreign interest rates.
- Supply of Dollars
    - Imports

      Increases as the domestic economy grows.
    - Domestic residents buying foreign assets

      Increases as foreign assets yield higher returns than domestic assets, generally speaking when foreign interest rates are higher than domestic interest rates.

Demand for Dollars

Exports increase demand for dollars as foreigners or merchants must covert foreign currency to the domestic currency as firms must pay workers in the domestic currency, in this case, dollars.

Economic growth in the foreign country increases their demand for exported goods from this country. If Europe grows 10% next year, then it is reasonable to project Europeans would buy approximately 10% more American goods.

Foreign residents wishing to buy domestic (American) assets must pay for them, ultimately, with dollars. Any increase in demand by foreigners for American assets increases demand for the dollar.

Europeans wishing to buy $100 million of US Treasury securities will need to exchange enough euros to obtain $100 million of dollars.

Foreigners can buy a variety of American assets: bonds, stocks, and real estate. Consequently, those markets experience changes in activity as foreign investors buy or sell.

When domestic investors buy an asset, they are hoping to maximize return. Return consists of two parts: income (dividends, rent, or interest) and capital gain (the difference between the price you buy it at and the price you sell it at).

First, let's talk about what affects supply of dollars. Supply of dollars increases as imports increase. In figure 8.0 in the right side, this is shown. As American imports increase from Europe, supply of dollars increase. The number of euros it takes to buy one American dollar decreases from 1.0 to .8. Aamerican demand for European imports could have been caused by an increase in American income.

Demand for dollars increases when foreigners purchase American assets. American assets become more desirable when their return is better than that of foreign assets. Bonds are one of the major assets purchased by foreigners. When interest rates increase in the United States, to buy American assets foreigners must buy American dollars and sell the foreign currency. Consequently, funds flow in thus increasing demand for dollars. When interest rates decrease relative to other countries then funds flow out.

Supply of Dollars

Supply for dollars is affected by American purchases of foreign goods, imports. Imports are affected by American income. Supply is also affected by American purchases of foreign assets such as foreign bonds, stock, real estate, corporate investment, etc. Increases in American purchases of foreign assets

increases the supply of dollars thus causing the dollar to depreciate. In other words, when the supply of dollars increase, the amount of foreign currency need to buy one American dollar decreases.

An Example: Effect of a Trade Deficit

Let's take a closer look at the impact of trade flows. An American trade deficit would push the supply of dollars to the right, the exchange rate of yen per dollar would drop. A dollar would buy fewer yen. Therefore a country experiencing a trade deficit, holding everything else constant, can expect its currency to depreciate. As a trade deficit continues, the domestic currency depreciates thus making foreign goods more expensive. As foreign products become more expensive, less is bought thus lessening the trade deficit, thus to a small extent there is a self-correcting mechanism in the absence of other factors. To maintain the competitiveness of Japanese exports, the Japanese want a weak yen. To assist the country in that goal, the Japanese central bank, The Bank of Japan, may buy American dollars and sell yen. By buying large quantities of American dollars, the Japanese central bank increases demand for dollars while flooding the currency market with yen. This causes the yen to depreciate and the dollar to appreciate.

Forecasting Exchange Rates

In discussing what affects exchange rates, we are really engaging in the art of currency forecasting. We will cover only a few of the basic concepts. There are two schools of thought that we will talk about: purchasing power parity and external balance. A more extensive discussion would include the Mundell-Fleming model complete with analysis of the effects of monetary and fiscal policies under fixed vs floating exchange rates. That model and other theories I will leave to more advanced courses.

Purchasing Power Parity

First, let's discuss price levels via the concept of Purchasing Power Parity (PPP). There are two levels of PPP -- absolute and relative.

Absolute Purchasing Power Parity

Absolute PPP says that a Big Mac bought in the United States should cost, in terms of labor hours, the same in Russia, India, or China. If it did not, wise arbitrageurs would buy the Big Mac in the cheapest country and sell it in the most expensive country

If enough arbitrageurs did this, then the price of the Big Mac in the cheapest country would rise, and the price in the most expensive market would fall until they were equal. Essentially this type of activity takes place every day in financial markets around the world. It has been called the Law of the One Price

But the price of the Big Mac around the world is not the same after accounting for foreign exchange rates. Why? Absolute PPP would apply only for tradables. Most services and many perishable products, are not tradables. You can't buy and sell Big Macs around the world. They are only fresh for a few minutes. The mobility of the resources to make Big Macs is also in question. Little surprise that empirical evidence does not support the explanatory power of absolute PPP for exchange rates.

Relative Purchasing Power Parity

What about relative PPP? Relative PPP says that exchange rates move in response to the differentials in inflation rates between two countries. If the United States has a two percent inflation rate and France six percent, then one could expect the American dollar to appreciate four percent per year against the French Franc. Does this, in fact, happen? In the short run no. In the long run (five to seven years) yes.

There are several problems with relative PPP. One, most formulations of PPP treat exchange rate variation as due strictly to monetary phenomenon. Not only are exchange rates subject to monetary

shocks but also real supply and demand shocks. Changes such as the oil shocks of the 70's affected both the oil exporters and oil importers. Two, inflation rates are measured by price indexes. Price indexes vary in the items included or excluded and in the method of computation. There are also lags in compiling data as well as in the quality of data. Very often the lastest data issued by a country is an estimate. Consequently, published inflation rates may not be a true indicator of the relative gap in price levels. Third, not all goods and services are tradables, price level changes may not, usually are not, distributed equally among tradables and nontradables. Four, PPP implies an absence of transaction costs and other barriers to trade. The wide spread use of tariffs, quotas, and capital controls to transfer of international funds may prevent exchange rate adjustment to PPP. Finally, central banks may manage exchange rates by pegging them to a specific currency or currency index or by allowing them to fluctuate within a defined currency band. To the extent that these policies are successful, exchange rates will not reflect PPP values.

These results imply that nominal exchange rates and real exchange rates (exchange rates adjusted for purchasing power changes) can be quite volatile. Corporations with foreign subsidaries have special problems translating and reporting results of operations due to exchange rate differences. As a last comment on PPP, PPP does not imply constant exchange rates.

External Balance

Another perspective on exchange rate behavior focuses on external balance. In this framework, more attention is paid to investment position and capital flows. We are just going to look at the effect of interest rates. I will be expanding this section in a future revision so keep tuned to this station.

Interest Rates

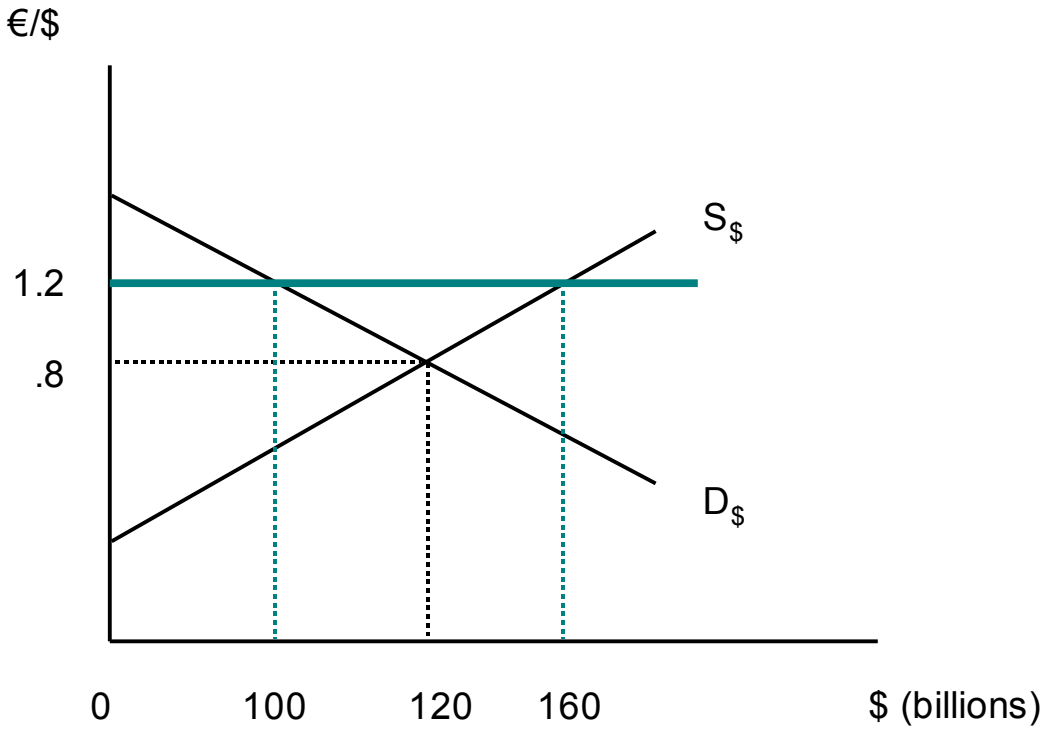
Interest rate differentials are another factor that affect exchanges rates. They do this by affecting capital flows. Let's say that your Uncle Hans in Germany asks you, his favorite nephew, to deposit 100,000 Euros in an American bank that earns six percent because his bank in Germany, Duetchsbank, only earns two percent. As many Europeans follow his example, demand for American dollars increases, and there is an excess supply of Euros. Consequently, the American dollar appreciates as the Euro depreciates.

The European central bank will be forced to raise interest rates to stop the depreciation of the Euro. European interest rates in banking may rise regardless of the European Cental Bank's actions as European banks are forced to compete for bank deposits against American banks.

We will discuss money, credit, and banking in more detail in the Money Market section of this course, but you can see here how interest rates are linked around the world. It has been a major trend in the 90's to have more mobile international capital. In fact, global movements of capital are having a stronger effect on exchange rates than trade flows.

Effects of a Fixed Exchange Rate

We are making an assumption that foreign exchange rates are market driven, i.e., free to fluctuate. That may not be true. At one time, most exchange rates were fixed. They were usually fixed by agreement among the central banks. For example, the U.S. dollar may be fixed at .6 British pounds. Either bank would exchange at that official rate. If one country began to amass large quantities of foreign monies (called reserves) then the currencies were revalued.



Given the graph above, the euro is fixed at .8 euros per dollar. In the case above, the euro is overvalued and the dollar undervalued. It takes fewer euros to buy a dollar (.8) than is should (1.2). Notice that the supply of dollars would be 180 billion yet demand for dollars would be 220 billion. That means there is a shortage of dollars, and given the opportunity the market would bid its price upward.

But at the current exchange rate of .8, American goods are cheaper to Europeans since it takes fewer euors to buy them at a normal market equilibrium. Consequently, Europeans increase their purchases of American goods, thus increasing demand for American dollars.

The reverse holds true for Americans, Europeans goods are more expensive. Thus Americans buy fewer European goods.

In the 70's so many revaluations were required that the system broke down. Rates become what are known as floating exchange rates. Some countries "peg" their currencies to that of another country's currency (usually the US dollar). That is to say they "fix" their exchange rate and adjust it periodically, or allow it to float within a trading band, often called a "managed float." This is done to stabilize their monetary aggregates and inflation.

Over time, floating rates have become more volatile causing problems for firms engaged in

international commerce. Various strategies that use hedging activities and derivatives are employed. Still, trends can be discerned in exchange rates. Several factors are thought to be important in the determination of exchange rates. One, changes in prices or price levels between countries

Role of Prices in the Aggregate Economy

From a firm's perspective in its market pricing is very important. Yet in discussing the aggregate economy, prices have less importance. Prices have the role of distributing demand among alternative products or consumption possibilities. If beef is more expensive than chicken then more chicken will be consumed relative to beef but aggregate spending on food will change very little. Localizing the argument further, if Burger King's Whopper is cheaper than McDonald's Big Mac, then Burger King will prosper at the expense of McDonald's but again total expenditures on food would not be expected to change significiantly. In fact, total expenditures on fast food probably would not change significantly. As a good approximation to reality, income determines aggregate demand, prices allocate it.

Product Market Summary

The product market is about aggregate demand, aggregate demand by consumers, businesses, governments, and foreigners. Income is what drives aggregate demand. What determines income? Employment is the answer. Jobs provide the income to buy the goods and services in the product market. Consequently, one can expect layoffs to negatively impact aggregate demand. Obviously employment changes can be used to project changes in demand. The labor market is covered in aggregate supply and business cycles but next we will cover the money and capital markets.